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MISCELLANEOUS NOTES AND DESCRIPTIONS OF CHALCIDOID PARASITES (HYMENOPTERA).

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This paper contains the descriptions of ten new species of Chalcidoidea and records of twenty other species, all reared by the writer, and for the most part from Coccidae and Aleyrodidae. *Marietta maculatipennis*, *Thysanus insularis*, *T. magniclavus*, and *T. louisianae* are most probably secondary and the others primary parasites. Unless otherwise designated the types are retained in the writer's collection.

EULOPHIDAE

SUBFAMILY ENTEDONINAE.

Euderomphale quercicola, new species.

Differentiated immediately from *E. flavimedia* (Howard) and *E. aleurothrix* Dozier by different coloration and by having the forewings with a narrow infumation beneath the marginal vein at about the middle. The corneous sensoria project beyond the distal ends of the joints, reminding one very much of the antennae of members of the trichogrammatid genus *Ufens*.

Female.—Length 0.969 mm.; expanse 1.88 mm.; greatest width of forewing 0.358 mm. General color black with metallic reflections; antennae fuscous; legs black, except cephalic tarsi, the proximal three joints of the middle and hind tarsi, and the knees, pale; the cephalic tibiae mostly pale but dusky on lateral margins. Forewings hyaline, a comparatively narrow infumation or clouding beneath the marginal vein at about the middle; this clouding does not cross the entire wing but reaches only to the row of setae that runs along close to the lower border of the wing; venation brown; caudal wing hyaline, the vein pale brown.

Antennae setose, the scape long; pedicel elongate, narrow at base and gradually enlarging, supplied with a number of conspicuous sensoria arranged in a revolving manner; two small but distinct ring-joints present, the proximal one being the smallest; the single funicle joint two-thirds as long as the pedicel but distinctly wider; club three-jointed, widest near distal end of the basal joint, then narrowing to acutely pointed tip; pedicel and club joints supplied with a number of longitudinal corneous sensoria that project more or less beyond the distal ends of the joints. Eyes naked, the margin of the vertex with a

number of prominent setae. Marginal vein of the forewing very long, over three times as long as the submarginal; just beneath the marginal vein are from 3 to 5 long setae that are directed downwards. Abdomen sessile, conic-ovate, the ovipositor barely visible from above. Tarsi four-jointed, the distal joint the longest.

Male.—Length, exclusive of the exerted genitalia, 0.645 mm.; expanse 1.61 mm.; greatest width of forewing, 0.301 mm. Smaller in size than the female and distinguished immediately by the difference in antennae. Antennae of the male have the pedicel and club joints distinctly stouter than in the female and the corneous sensoria appear more numerous and projected more beyond the distal ends of the joints, giving a peculiar appearance to the apical joint of the club. The infumation of the forewing in the male is decidedly less deep and the venation is a paler brown. Abdomen not sessile as in the female but with petiole extremely short, distinctly narrower at base than the thorax, narrowing to tip where the genitalia is distinctly exerted.

Described from a female and two males reared by the writer from a large, undescribed whitefly, *Tetraleurodes* sp., on the Live Oak, *Quercus virginiana*, at City Park, New Orleans, La., January 12, 1932, and a female caught on the foliage of same tree on same date. Paratype female on slide is deposited in the U. S. National Museum collection. Type No. 44823.

***Euderomphale vittata*, new species.**

Distinguished from all described species at once by its distinct abdominal coloration. A large, robust West Indian species.

Female.—Length 0.833 mm.; expanse 1.79 mm.; greatest width of forewing 0.402 mm. Head and thorax black, the abdomen pallid with a very distinctive broad, brown-black cross band just before the pale tip; antennae and legs entirely pale; ovipositor grayish-black. The forewings hyaline, without any trace of infumation, the venation pale yellowish.

Antennae short, sparsely covered with rather short, pale setae; pedicel stout and about twice as long as wide; one small and narrow ring-joint; second and third funicle joints of about same length but the third distinctly wider and same width as the pedicel; club three-jointed, stout and thick, the second joint slightly the widest, the distal joint narrowing to distinctly tapered point. Eyes abundantly but minutely setose. The pronotum, prescutum, and scutellum scaly-reticulate, with numerous short black setae. Forewings very broad, almost twice as long as wide; the distal half thickly and uniformly ciliated, the remainder appearing clear, but this is due to the almost transparent cilia covering that area; marginal cilia very short. Abdomen pedicillate, somewhat spherical in outline, the ovipositor only very slightly exerted.

Male.—Length, exclusive of exerted oedeagus, 0.817 mm. Only slightly smaller than the female; the abdomen less spherical and somewhat truncated; the tip of the abdomen not as distinctly pale as is the case with the female. The male can be distinguished at once from the female by the pale oedeagus in

contrast to the gray-black ovipositor and by having the third funicle joint much longer, about twice as long as the second funicle and distinctly wider.

Described from a series of seven females and three males, reared by the writer from a large whitefly, *Aleurodicus* sp., on "Maria," *Calophyllum antillarum*, at San Juan (Santurce), Porto Rico, March 2 and June 8, 1925. Holotype female and allotype male, mounted in balsam, are deposited in the U. S. National Museum collection. Type No. 44824.

SUBFAMILY APHELININAE.

Marietta busckii (Howard).

Howard, U. S. D. A. Tech. Bul., Ser. 12, pt. 4, p. 87, 1907, *Perissopterus*.

This species was described from a single male, reared from *Asterolecanium aureum* at San Juan, Porto Rico, in 1899 by A. Busck. To this the following records, obtained by the writer in 1925 at Rio Piedras, Porto Rico, may be added:—one male from soft scale on *Citrus*, May 26; two females from *Asterolecanium pustulans* on *Cassia fistula*, June 13–14; two females from *Ceroplastes cirripediformis* on passion vine, July 3. In addition, the species is abundant in Haiti where it was reared as follows:—one male from *Terminalia catappa* infested with *Saisettia oleae* and *Aspidiotus destructor* at Port-au-Prince, Dec. 14, 1929; one male from green *Lecanium* on guava at Damien, Feb. 11, 1930; four males and five females from *Tachardiella cydoniae* (Hempel) on *Annona* at Source Puantes, May 13, 1930; two males and one female from *Coccus mangiferae* on mango foliage at Petionville, Nov. 22–24, 1930, and four males and three females from same source Dec. 1–2, 1930; one female from *Cerococcus* n. sp. on wild fig, *Ficus mitrophora*, at Damien, March 13, 1931; and one male from *Asterolecanium pustulans* on oleander at Damien, June 18, 1931.

Marietta pulchella (Howard).

Howard, Report of the Entomologist, Ann. Rept. Com. Agr., p. 356, 1880, *Aphelinus*.

Two females, reared by Thos. F. Catchings from *Lecaniodiaspis* n. sp. on willow at City Park, New Orleans, La., Nov. 19, 1928.

Marietta carnesi (Howard).

Ent. News, vol. 21—p. 162, 1910.

On May 31, 1927, the writer reared a single female of a *Marietta* from the San Jose scale, *Aspidiotus perniciosus*, on Japanese quince at Newark, Delaware, in association with *Prospaltella perniciosi* Tower and *Azotus americanus* Dozier, that according to Mr. Gahan appeared to resemble remarkably *M. carnesi* (Howard). More recently, a slide with numerous

specimens of *M. carnesi* reared from *Chrysomphalus aurantii* in Japan, Dec. 12, 1922, by C. P. Clausen, has been received through the kindness of Harold Compere and has been studied. The Delaware specimen, although distinctly smaller, measuring only 0.516 mm. in length, appears to be undoubtedly the same and adds the Asiatic species *M. carnesi* to the North American fauna.

***Marietta maculatipennis*, new species.**

This species is probably best placed in *Marietta* Motschulsky, although the male wings are hyaline and not spotted as in that genus, and is very similar, especially in the wings, to *Marietta puntaticorpus* (Girault). It appears to be congeneric with the species described as *Perisopterus capillatus* Howard and *P. noumeaensis* Howard, which have the spotted appearance of the female wings due to groupings of heavy black setae and not to a dark granulated integument between the setae as is the case with the *pulchella* group. The new species appears also to be very close to *Paraphytis* Compere but the male antennae are six-jointed instead of five-jointed.

Female.—Length, including ovipositor, 0.588 mm.; expanse 1.31 mm.; greatest width of forewing 0.20 mm. General color orange-yellow, the abdominal segments marked with fuscous at lateral margins; antennae yellowish, the proximal two-thirds of the club slightly browned; eyes bluish-white in life, black in balsam mounts, distinctly setose; ocelli reddish; legs pale yellowish, the middle and hind femora marked with fuscous near distal end and the tibiae with two fuscous bands; the short, stout front tibiae with a single band across middle. The forewings hyaline, with groupings of heavier, black setae giving an appearance of being six-spotted, quite different from *M. pulchella* (Howard) which has the pattern of markings on the forewing due to dark granulated integument between the setae; a hairless oblique streak present across forewing.

Apex of the vertex incised or notched at the middle. Prescutum with a single small seta in the outer angles, a row of four setae on each side near the median line, the anterior one being the smallest and the posterior one very long and stout; in addition near the anterior margin is a smaller and less conspicuous seta that lies about midway between the other setae; scapula with three setae and the axilla with a single one; scutellum with a pair of extra strong, long setae on each side. Dark portions of body appear reticulated under high magnification. Endophragma rather short but very distinct and prominent in balsam mounts. Abdomen as long as the thorax and about as wide, the ovipositor short but distinctly exerted. All tarsi five-jointed.

Male.—Length 0.459 mm.; expanse 1.12 mm.; greatest width of forewing 0.186 mm., decidedly smaller than the female and less orange in color, being more sordid; the abdomen with a transverse band of fuscous covering the first tergite, and nearly the apical half, infuscated. Antennae six-jointed, the scape decidedly wider than that of the female and the entire antenna is soiled yellowish. Forewings hyaline, lacking the groupings of stout black setae of the female, a

very small area at the stigma inconspicuously infumed. The legs are pale, without the definite markings of the female, the hind tibiae with a single median band of fuscous.

Described from a series of both sexes, reared by the writer in extremely abundant numbers from a diaspine scale, *Aspidiotus* (*Diaspidiotus*) sp., incrusting the trunk and branches of young mahogany, *Swietenia mahogani*, in nursery at Cote Plage, Haiti, June 27, 1930. From the same material a few specimens of an undescribed *Prospaltella* and an abundance of *Ablerus* n. sp. issued June 25-27th. As all members of the genus *Marietta* to date whose habits are known are secondary parasites, this species is most probably secondary on the *Prospaltella*. A single male of the new *Marietta* was reared from the scale, *Vinsonia stellifera*, on undetermined shrub near Las Cahobas, Haiti, Dec. 19, 1930. Holotype female and allotype male are deposited in the U. S. National Museum collection. Type No. 44822.

***Aspidiotiphagus citrinus* (Craw).**

Craw, Destructive Insects, Sacramento, Cal., 1891, *Coccophagus*.

Reared by the writer in abundant numbers from Florida Red Scale, *Chrysomphalus aonidum*, heavily encrusting rose stems at Port-au-Prince, Haiti, Oct. 28, 1929. This appears to be the most common scale parasite in Porto Rico and Haiti.

***Aspidiotiphagus lounsburyi*, Berl. & Paoli.**

Berlese & Paoli, Redia, XI, Firenze, fascicle 1, p. 305, 1916.

Reared in very abundant numbers from *Parlatoria zizyphus* on the West Indian lime foliage at Port-au-Prince, Haiti, June 1-20, 1931.

***Aphytis fuscipennis* (Howard).**

Howard, Ann. Rept. Com. Agr., p. 356, 1880, *Aphelinus*.

Reared in abundance from *Lepidosaphes alba* Ckll. on *Manihot cassava* at Damien, Haiti, Jan. 29, 1930.

***Aphytis limonus* (Rust).**

Rust, Ent. News, vol. 26, p. 77, 1915

This lemon-yellow primary parasite was reared in abundance from *Lepidosaphes alba* Ckll. on *Manihot cassava* at Damien, Haiti, Jan. 27-29, 1930, in association with *A. fuscipennis* (How.), *Thysanus maculatus* (Girault) and *Thysanus insularis* Dozier. The distinctly lemon-yellow venation distinguishes this heretofore rare species at once. This material has been kindly compared by Mr. Gahan with the type from Peru in the U. S. National Museum and found to be identical.

Aphytis chrysomphali (Mercet).Mercet, Bol. Soc. Esp. Hist. Nat., vol. 12, p. 135, 1912, *Aphelinus*.

Very abundant on *Aspidiotus destructor* on the West Indian almond, *Terminalia catappa* on the Champs de Mars at Port-au-Prince, Haiti, Dec. 13, 1929.

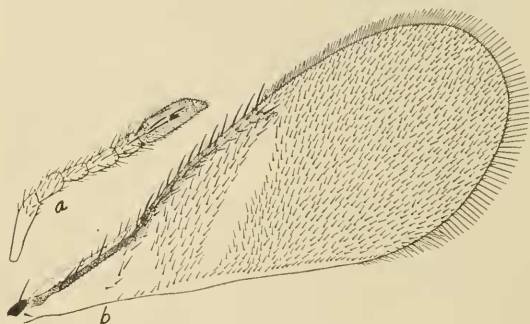
Aphytis maeulicornis (Masi).Masi, Boll. Lab. Zool. Gen. Agr., Portici, vol. 5, p. 140, 1911, *Aphelinus*.

Reared by the writer in abundant numbers from *Parlatoria crotonis* Douglas on cultivated Croton foliage at Port-au-Prince, Haiti, April 30–May 8, 1931, in association with *Hispaniella* sp.

Mesidia gillettei Howard.

Howard, Proc. Ent. Soc. Wash., vol. 16, p. 80, 1914.

The original description of this rare species was based on a single female reared by C. P. Gillette from *Brachycolus tritici*, Oct. 13, 1908, presumably at Fort Collins, Colorado. Its general color was given as dull honey-yellow and does not mention the darkening of the posterior margins of the abdomen, which makes it appear as if striped transversely across (even more apparent in freshly balsam-mounted specimens). Mr. Gahan has kindly compared the Illinois material with the type in the U. S. National Museum and finds them to be identical. The drawings were made by Mr. Carl Mohr by courtesy of Dr. T. H. Frison of the Illinois State Natural History Survey.



Female.—Length 0.789–0.903 mm.; expanse 1.91–1.94 mm.; greatest width of forewing 0.287 mm. General color a dirty or soiled yellowish-orange, the pronotum and anterior margin of the prescutum dusky, the abdominal segments dusky along their posterior margins giving the abdomen an appearance of being transversely banded; the head slightly ferruginous; eyes black; ocelli red; antennae nearly concolorous with the body; the legs uniformly soiled yellowish-testaceous, the tarsi pale except for the dark distal joint, venation pale yellow.

Eyes distinctly setose. Vertex supplied with rather prominent setae. Antennae six-jointed (Fig. a), all the joints furnished with setae; the scape long, enlarging towards distal end; pedicel about twice as long as wide, slightly longer

than the first funicle joint and subequal the second in length; funicle one distinctly narrower than the pedicel, subequal the third funicle in length; the funicle joints each successively slightly wider; the club composed of a single joint, about a third wider than the widest funicle joint, nearly equalling in length the three funicle joints combined, and provided with a number of longitudinal sensoria. Prescutum with a number of sparsely arranged setae, a pair of larger ones near the posterior margin; scapulae with two setae, the axillae with one and the scutellum with a very strong, prominent seta on each side near its anterior margin; metanotum with a pair of prominent setae. A very distinct endophragma extends back into the abdomen. Forewings long and slender (Fig. b), hyaline, densely ciliated over the disk, with a distinct oblique hairless streak across the wing; marginal vein slightly longer than the submarginal. Abdomen rather rounded, the ovipositor slightly exerted. Tarsi five-jointed.

Male.—Unknown.

The above description is based on three females taken by the writer sweeping low vegetation at edge of pond near Cache, Ill., May 6-7, 1932.

TRICHAPORUS Förster.

1856 Förster, Hym. Stud., vol. 2, p. 84, *Trichaporus*.

1895 Howard, U. S. Dept. Agr., Div. Ent. Tech. Ser. Bul 1, p. 28, *Encarsia*.

1912 Mercet, Trab. Mus. Cien. Nat. Ser. Zool., no. 10, p. 149, *Encarsia*.

1930 Nowicki, Neue Beitr. z. Syst. Insektenkunde, vol. 4, nos. 13-14, p. 157, *Trichaporus*.

1930 Mercet, Rev. de Biol. Forestal y Limnologia, vol. 2, Ser. B, no 2, p. 82, *Trichaporus*.

Förster described the genus *Trichaporus* in 1856 without assigning any species to it, placing the genus in the Tetrastichinae. Kurdjumov, in examining the Förster collection, preserved in the Vienna Museum, found six different species placed under the generic name *Trichaporus*:—the first species *T. solutus* Frst. (not described) did not belong to the Tetrastichinae but to the Omphalini of the subfamily Entedoninae and is identical with the genus *Astichus* Frst. The second species was *Euderus arithmeticus* Frst. described in 1851 and chosen by him in 1856 as the genotype of his new genus *Astichus*. In addition to these two species the other four all belonged to the Aphelininae, namely:—*T. aleyrodidis* Frst., *conferarum* Frst., *infuscatus* Frst. and *nigrinus* Frst. S. Nowicki in 1930 in his paper "Bemerkungen zu den europäischen Apheliniden-Gattungen" (Observations on European Aphelinid genera), has shown that *Trichaporus* Frst. is distinct from *Trichaporus* Ashmead and that *Trichaporus melleus* Ashm. (selected by Girault in 1912 as genotype) differs from the original generic description of Förster in at least two very important characteristics—in the larger number of antennal joints and in the presence of grooves on the scutellum, which shows clearly that *T. melleus* Ashm. can not serve as genotype for *Trichaporus* Förster, which genus according to Förster has both sexes with 8-jointed antennae. According to Nowicki and Mercet, the

genotype of *Encarsia* Förster (*Encarsia tricolor* Frst.) is the same insect as *Doloresia conjugata* (Masi) and *Encarsia* Frst. is characterized by 8-jointed antennae in the female sex and only 7-jointed in the male. Therefore we must either erect a new genus to contain all the species that fall into *Encarsia* as used by Howard and other authors since, or else accept that proposed by Nowicki and place these under the genus *Trichaporus* Förster with the type of that genus *T. aleyrodis* Frst.

***Trichaporus variegata* (Howard).**

Howard, Proc. Ent. Soc. Wash., vol. X, p. 64, March-June, 1908, *Encarsia*.

This species was described from two females reared from *Paraleyrodes perseae* (Quaint.) on lemon foliage in Florida. It was recorded for the second time by the writer as attacking *Paraleyrodes naranjæ* Dozier on *Citrus* in Porto Rico. The species is abundant in Haiti where it was reared by the writer in numbers at Port-au-Prince and Source Cazeau from a species of *Paraleyrodes* that is common on *Annona squamosa*, *Bauhinia divaricata*, and *Citrus*. *Trichaporus variegata* can be immediately distinguished from the other members of the genus by the silvery-white scutellum which reflects iridescent in balsam mounts. Apparently it confines its activities to members of the whitefly genus *Paraleyrodes*.

***Trichaporus cubensis* (Gahan).**

Gahan, Proc. Ent. Soc. Wash., vol. 33, no. 5, pp. 121-122, May, 1931, *Encarsia*.

This parasite was reared by the writer in very abundant numbers at Damien, Haiti, Dec. 6-15, 1930, from the Woolly Whitefly, *Aleurothrixus floccosus* (Maskell), on *Spondias mombin* together with *Trichaporus haitiensis* (Dozier), *Prospaltella brasiliensis* (Hempel) and *Euderomphale aleurothrixi* Dozier; from an undescribed *Aleurothrixus* on Haitian oak, *Catalpa longissima*, at same locality March 6, 1931; and from *Aleurothrixus floccosus* on *Lignum-vitæ*, *Guajacum officinale*, at Sarthe, Haiti, Jan. 26, 1931. It was originally described from the Woolly Whitefly in Cuba and is undoubtedly one of the most important parasites of this aleyrodid.

***Trichaporus catherineae*, new species.**

One of the most beautiful and distinctly marked species of the genus. Belongs to the group of *Trichaporus* (*Encarsia* sensu Howard et auctores), having all tarsi five-jointed.

Female.—Length, including ovipositor, 0.731 mm.; expanse 1.378 mm.; greatest width of forewing 0.215 mm. General color orange-yellow, the two apical joints of the antennae and the abdomen except the extreme tip, dark

brown; legs entirely pale; the forewings lightly clouded below the marginal vein across the middle; eyes black; ocelli red.

Under high magnification, the vertex, prescutum, scapulae, and scutellum appear very faintly, polygonally reticulated. Prescutum and scutellum without setae. Antennae eight-jointed, without a distinctive club differentiation; the scape long and slender, equal in length to first two funicle joints combined; pedicel short, about two-thirds as long as the first funicle but distinctly wider; the first funicle slightly narrower and shorter than the other funicles which are subequal; the last two antennal joints are slightly wider than the others and together with their dark color have the appearance of a two-jointed club. Forewings slightly over twice as long as wide, rather uniformly covered with cilia but bare on the basal third; the cilia in the clouded area appear distinctly darker than those of the apical third; marginal vein grayish. Abdomen robust, slightly longer than the thorax, the ovipositor distinctly exerted. All tarsi five-jointed, the proximal joint nearly as long as the others combined.

Male.—Unknown.

Described from two females reared by the writer from an undescribed whitefly, *Aleuroplatus* sp., on Haitian oak, *Catalpa longissima*, at Damien, Haiti, Nov. 1, 1929, and four females from the same host and locality, March 16–19, 1931. The type female on slide is deposited in the collection of the U. S. National Museum. Type No. 44820.

Coccophagus ochraceus Howard.

Howard, U. S. Dept. Agr., Div. Ent. Tech. Bul. No. 1, p. 38, 1895.

A male and a female reared by the writer at New Orleans, La., Jan. 14, 1932, from oleander infested with *Saissetia oleae* and *Aspidiotus* sp., are undoubtedly this species which has heretofore been known only from California and South Africa, as a primary parasite of the Black Scale.

Prospaltella diaspidicola Silvestri.

Silvestri, Reale Accad. dei Lincei, vol. 18, p. 564, 1909.

The writer reared this parasite from *Aulacaspis pentagona* on papaya fruit at Port-au-Prince, Haiti, July 14, 1930, in small numbers. It was first described from Italy and Gahan (Proc. U. S. Nat. Museum, vol. 65, p. 14, 1924) states that it is now known from South Africa, Japan and Brazil from the same host. The writer reared the same species from *Aulacaspis pentagona* at Rio Piedras, Porto Rico, in 1925. Repeated rearing attempts in both Porto Rico and Haiti failed to show the presence of *Prospaltella berlesii* Howard and this useful parasite should be introduced against *Aulacaspis pentagona* which incrusts the trunks of papaya, oleander, mulberry and many other shrubs and vines in those islands.

***Physcus uvae*, new species.**

A very distinctly colored West Indian species.

Female.—Length, including ovipositor, 0.746 mm.; expanse 1.16 mm. greatest width of forewing 0.215 mm. General color dark brown to black, the abdomen yellowish with the lateral margins outlined with fuscous; antennae pale yellowish-white, the basal half of the scape fuscous; legs entirely pale yellowish. In balsam-mounted specimens a narrow median line on the prescutum and scutellum and the inner portion of the scapulae appear lighter colored.

Under high magnification, the vertex appears scaly-reticulate, the prescutum without reticulation, and the scutellum longitudinally reticulate. Eyes minutely setose. Anterior margin of vertex with a number of rather coarse black hairs; prescutum with coarse sparsely placed setae; scutellum with a prominent pore and a pair of slightly longer and stouter setae on each side. Antennae seven-jointed, composed of long, slightly compressed scape, pedicel, three funicle joints, each twice as long as wide, the third being slightly longer and wider than the first two, and a two-jointed club which tapers to a point. Forewings hyaline, with short marginal fringe and the disk covered rather uniformly with cilia. Abdomen as long as the thorax and about equal in width, the ovipositor rather short but distinctly exerted. All tarsi five-jointed.

Male.—Length 0.516 mm.; expanse 1.06 mm.; greatest width of forewing 0.186 mm. Distinguished at once from the female by its eight-jointed antennae, distinctly smaller size, and the head and entire body are dark brown-black. The legs are soiled testaceous, the front and hind femora lightly shaded with brown. In the male the club is not differentiated from the funicle; the joints are all subequal in length and width, with numerous longitudinal sensoria; the apical joint tapering to point.

Described from a series of 37 females and 3 males, mounted in balsam on ten slides, reared from *Aspidiotus lataniae* on grape vine at St. Marc, Haiti, August 20, 1931. U. S. Nat. Museum No. 44821. The host scale was very abundant on the stems and foliage of grape vine on porch of hotel and apparently killing it. A few specimens of *Marietta busckii* (Howard) issued at the same time and are probably secondary on the *Physcus*.

ENCYRTIDAE

***Paracalocerinus marilandia* Girault.**

Girault, Chalcidoidea Nova Marilandensis, p. 1, May 21, 1917 (Privately published).

This species fits perfectly in Mercet's genus *Masia*, which Timberlake states is a synonym of *Paracalocerinus* Girault. It is very closely allied to the European *Paracalocerinus pulchripennis* (Mercet).

Female.—Length, exclusive of ovipositor, 1.29 mm.; expanse 2.09 mm.; greatest width of forewing 0.25 mm. General color of balsam-mounted female is brownish, possibly with metallic reflections in life; the antennae entirely grayish-brown; legs concolorous with the antennae except for the more yellowish front and middle femora, the distal fifth of the middle tibiae, and pale first four joints of the tarsi; distal joint of all tarsi, black. Venation grayish. Forewings hyaline, with a wide band across the middle covering the area in which the oblique hairless streak lies and nearly the entire distal third, brown; this gives to the forewings the appearance of being twice-banded. Ovipositor brown.

Head convex and rounded in front. Eyes large, oval, and hairless. Mandibles apparently bidentate, the maxillary palpi four-jointed, and the labial palpi three-jointed. Under high magnification, all dark portions appear scaly-reticulate. Antennae inserted near the mouth, very broad and flattened, composed of nine joints, the club solid and very conspicuous; scape long and slightly compressed, equalling the combined length of the first five funicle joints, reticulated; pedicel subtriangular, short; the six funicle joints much flattened, distinctly wider than long, enlarging to the apex; the first funicle decidedly narrower than the others: the second funicle joint is slightly longer than the other joints, which are all subequal in length; the club is elongate-ovoid in shape, solid and very distinctive, widest at base and rounded at tip; with a longitudinal raised conspicuous ridge running along the lower portion of the club and this portion to the posterior margin, under high magnification, appears pebbled like pig skin; funicle and club furnished sparsely with very short, irregularly placed sensoria; antennae setose, those of the club being distinctly shorter and more numerous. Forewings long and narrow, the marginal cilia short, those along the outer lower margin being the longest; an oblique hairless streak present beneath the marginal vein; the discal setae are very dark and prominent on the banded portions but are almost transparent across the middle and basal portions, giving to these the appearance of being hyaline and hairless. Distal end of front tibia furnished with curved strigil and an oblique pectinate row of spines; first joint of front tarsi with an oblique row of pectinate spines running diagonally across; middle tibiae furnished with a number of much larger and thicker distal spines and the first tarsal joint has a number of stout but transparent spines along its inner margin; the hind tibiae somewhat flattened, with conspicuous heavy spines along the inner margin. Ovipositor strongly exerted.

Male.—Unknown.

Above description made from a single female collected by the writer sweeping and beating near Waukegan, Illinois, July 4, 1932. Mr. Gahan has kindly compared this specimen with the unique type in the U. S. National Museum and states that it differs from the type by having somewhat broader wings but the same coloration, and that the wings of the type are obviously not fully developed.

***Euaphycus portoricensis* Dozier.**

Dozier, Proc. Ent. Soc. Washington, vol. 28, no. 5, May 1926, p. 101.

A male and female of this species were reared by the writer from *Asterolecanium pustulans* on fig at Port-au-Prince, Haiti, Nov. 21, 1929, and a female from the same host on "Flamboyante" at Damien, Haiti, April 16, 1930. The species was originally described from the same host scale in Porto Rico. Although a special attempt was made, no specimens of the more important primary, *Mercetiella reticulata* Dozier, of Porto Rico, were obtained by the writer in Haiti.

MYMARIDAE

***Polynema longipes* Ashmead.**

Ashmead, Canadian Entomologist, vol. XIX, p. 192, 1887, *Ooctonus*.

A female collected by the writer on window of the Experiment Station at Newark, Delaware, August 9, 1927, agrees well with material in the U. S. National Museum and also with a slide in the Illinois Natural History Survey collection, labeled Centralia, Ill., Aug. 25, 1909. The scape is distinctly flattened and broad, and is pale in color. A series of two females on window at Newark, Delaware, July 30 and Aug. 6, 1927, one female from Wilmington, Del., June 30, 1927, and a female taken sweeping shrubbery at Magnolia, Del., Aug. 24, 1927, were at first thought to be different due to their smaller size and narrower scape and pedicel but are undoubtedly the same species.

***Polynema mymaripennis*, new species.**

Differing from all other described species of the genus in the peculiar shape of the forewings, resembling somewhat superficially those of the genus *Mymar*.

Female.—Length, including ovipositor, 0.459 mm.; expanse 1.15 mm.; greatest width of forewing .086 mm. Head, thorax and abdomen light brown in color, the latter palest at base; petiole and legs pale testaceous; antennae light brown, the scape and pedicel pale.

Scape twice as long as greatest width, rather broad and distinctly compressed; pedicel short, only half as long as the scape, and about the same width; first funicle joint very short, the shortest about a third as long as the pedicel; the second funicle distinctly the longest, slightly narrower than and three and a half times as long as the first; third funicle nearly as long as the second and same width; fourth funicle only a half as long as the second; the fifth and sixth subequal in length and about twice as long as the very short first funicle, successively wider; the club very large and conspicuously stout, equal in length to that of the last three funicle joints combined, twice as wide as the greatest width

of the scape, solid, with three very short sensoria present at apex. Forewings barely perceptibly smoky, becoming completely hyaline around the outer posterior border; reminding one of the forewings of members of the genus *Mymar* and *Neomymar* in outline; rather long and slender, the posterior border irregular in outline; marginal fringe unusually long and conspicuous, the cilia along the outer posterior margin being distinctly the longest, about twice as long as the greatest width of the forewing; with a clear path at the base of the fringe; discal cilia covering the entire disk except for very narrow, clear space along the outer posterior border. Petiole only one-third as long as the abdomen. The ovipositor rather short but distinctly exerted. All tarsi four-jointed.

Male.—Unknown.

Described from a single female collected by the writer on Experiment Station window at Newark, Delaware, Aug. 6, 1927.

***Camptoptera brunnea*, new species.**

Next to *C. minutissima* Dozier from Haiti in size but readily distinguished from all described species by the extremely long, brown scape and the short, brown first funicle joint. Very close to *C. foersteri* Girault described from Germany.

Female.—Length 0.287 mm. General color brown, the antennae concolorous with the body except the pale pedicel; legs pale brownish.

Antennae elbowed, long and slender, nine-jointed with the additional ring-joint; scape extremely long and slender in comparison with the other described species, about four times as long as the pedicel; pedicel short; serrate, over twice as wide as the scape; first funicle short for the genus, subequal in length to the pedicel; ring-joint distinct; second true funicle joint twice as long as the first, distinctly the longest joint of the funicle; the third, fourth, fifth and sixth subequal in length, each increasing slightly in width; club solid, distinctly wider than the funicle, about three times as long as the last funicle joint, subcylindrical ovate. High magnification does not show the lineate appearance of the pre-scutum and scutellum that is found in *C. minutissima* Dozier. Forewings typical for the genus, being slender, distinctly dilated along the caudal margin at basal third, then narrowed, followed by a gradual widening outwards, distinctly bowed or curved on the apical third; furnished with a complete fringe of long marginal cilia, interrupted by the usual clear path near their base around the margin; a double longitudinal row of minute setae follow around the margins of the wing with a third median row on the disk. Petiole short, not barbed as in *C. pulla* Girault. The abdomen in the single specimen is twisted and therefore it is impossible to state its form accurately. Legs normal, with five tarsal joints, the first and last of which are slightly longer than the other joints.

Male.—Unknown.

Described from a single female taken by the writer on the Experiment Station window at Newark, Delaware, August 12, 1929. Type retained in author's collection.

TRICHOGRAMMATIDAE

SUBFAMILY CALESINAE MERCET.

Cales noacki Howard.

1907 Howard, U. S. Bur. Ent., Tech. Ser. Bul. 12, pt. 4, p. 82.

1915 Brethes, *Nunquam otiosus*, p. 15, *Diaspidophilus pallidus*.

1928 Stuardo, *Rev. Chilena Hist. Nat.*, vol. 32, pp. 154-156.

1929 Mercet, E. O. S., *Rev. Esp. de Entomologia*, vol. 5, pp. 114-117, *C. pallidus*.

The writer reared four females from *Aleurothrixus* n. sp. on "Amandier à petites feuilles," *Prunus myrtifolia*, in association with *Eretmocerus paulistus* Hempel and *Prospaltella brasiliensis* (Hempel) at Kenskoff, Haiti, Nov. 5, 1929; four females from *Aleurothrixus floccosus* (Maskell) on foliage of young mahogany seedlings at Cote Plage, Haiti, June 21, 1930, in association with *Eretmocerus paulistus*; three females and two males from *Aleurothrixus* n. sp. on *Catalpa longissima* at Damien, Haiti, March 21-23, 1931; 15 females and 22 males from *Aleurothrixus floccosus* on young mahogany foliage at Port-au-Prince, Haiti, June 18-19, 1931; and 9 females and 5 males reared from lime foliage infested with *Aleurocanthus woglumi* Ashby and *Parlatoria zizyphus* at Port-au-Prince, Haiti, June 18-19, 1931.

This material agrees with the description of *C. pallidus* (Brethes) but specimens compared by Mr. Gahan with the unique female type of *Cales noacki* Howard from Brazil show no specific differences. The species is not very abundant and is most probably a secondary parasite.

SIGNIPHORIDAE

Thysanus unifasciatus (Ashm.).

Ashmead, *Proc. U. S. Nat. Mus.*, vol. 22, p. 410, 1900, *Signiphora*.

Three females were reared by the writer from nymphs of the pit-forming psyllid, *Ceropsylla sideroxyli* Riley, on "Bois comat," *Sideroxylon foetidissimum*, at Tapion Hill, Haiti, Feb. 19, 1930. This material was compared with the unique female type in the U. S. National Museum, reared from the same host at Georgiana, Florida. The distinct narrow yellow band across the base of the scutellum at once distinguishes this species from *T. noacki* (Ashm.), the only other known psyllid-infesting *Thysanus*.

Thysanus insularis, new species.

Belongs to the *flavopalliata* group. Very close to *Thysanus fax* (Girault) but the type of that species is shorter and more compact, with the abdomen not over one and a half times as long as broad, broadly rounded at the apex, the legs distinctly darker, and the head a somewhat darker yellow than is the case with *insularis*.

Female.—Length 0.516 mm.; expanse 0.72 mm.; greatest width of forewing 0.158 mm. Small for the genus. General color dark brown, the head lighter, the lower half of the prescutum and scutellum being distinctly lemon yellow; antennae light brown except the pale scape; legs entirely pallid yellowish-white; eyes dark red. The forewings hyaline at base with smoky cross band out to the end of the venation.

Antennae six-jointed, the club rather elongate, measuring .086 mm. in length, four times as long as its greatest width, twice as long as the pedicel. Marginal fringes of the forewing moderate in length, longest along the apical margin, there being about as long as the greatest width of forewing. Oblique crease of forewing only very faintly indicated; pale discal bristle present. The endophragma prominent, deep and broad, extending back into the abdomen for half the length of the latter. General form rather elongate, the ovipositor only shortly exerted.

Male.—Unknown.

Described from six females, reared by the writer from *Lepidosaphes alba* (Ckll.), Jan. 27–29, 1930, at Damien, Haiti, in association with *Aphytis fuscipennis* (Howard), *Thysanus maculatus* (Girault), and *Aphytis limonus* (Rust), and most probably secondary on the last named parasite.

The type female on slide in balsam is deposited in the U. S. National Museum collection. Type No. 44818.

***Thysanus maculatus* (Girault).**

Girault, Proc. U. S. Nat. Mus., vol. 45, p. 221. 1913, *Signiphora*.

Large numbers reared from the Manioc Scale, *Lepidosaphes alba* (Ckll.), Jan. 27–29, 1930, on *Manihot cassava* at Damien, Haiti, in association with the primary parasites *Aphytis fuscipennis* (Howard), *Aphytis limonus* (Rust), and *Thysanus insularis*. *T. maculatus* (Gir.) is most probably secondary on *Aphytis fuscipennis*. Of the 24 specimens mounted on slides, all proved to be females. The species was originally described from 18 females reared from the same host in Cuba.

The *Aphytis* spp., upon issuing, were very active but both of the species of *Thysanus* refused to leave the heavily incrustated manioc branches although these were roughly handled on purpose. Nothing but a sudden jarring would dislodge them and interrupt their work of ovipositing.

***Thysanus magniclavus*, new species.**

A very robust species that is distinguished at once from all described members of the genus by its large conspicuous club. Apparently belongs to the *flavopallata* group but closely related to *T. bifasciatus* (Ashm.).

Female.—Length, including ovipositor, 0.60 mm.; expanse 1.06 mm.; greatest width of forewing 0.143 mm. General color of balsam-mounted specimen dark

black brown with a narrow pale yellow band between the wings; antennae entirely brown; forelegs light brown, the three middle tarsal joints pale; middle legs pale yellowish, the first four tarsal joints pale; hind femora yellowish, the tibiae brown, lighter at distal tip, the first four tarsal joints pale. Forewings smoky out to the end of the stigmal vein; oblique crease and discal bristle present; broad, the marginal fringe comparatively short, the longest cilia being about one half as long as the greatest width of the forewing. Antennae short and stout, the club slightly less than three times as long as the greatest width, measuring 0.10 mm. in length and greatest width 0.036 mm.; width of club about equal the length of the pedicel; scape five times as long as wide, compressed. Abdomen robust, the ovipositor distinctly exerted.

Male.—Unknown.

Described from a single female taken by the writer sweeping grass, weeds and shrubbery at Port-au-Prince, Haiti, May 3, 1931, mounted in balsam on slide.

Thysanus louisianae, new species.

Closest allied to *T. townsendi* (Ashm.) but differs distinctly in the less curved wing venation and the abdominal coloration.

Male.—Length, exclusive of oedeagus, 0.473–.545 mm.; expanse 0.717–.803 mm.; greatest width of forewing 0.086 mm. Belongs to the *flavopalliat*a group as defined by Girault. A medium sized species. General color sooty brown, with a wide lemon yellow band across the thorax, including the lower fourth of the prescutum, the scutellum, the entire metanotum and propodeum; a band across the distal third of the abdomen and the tip of abdomen, yellow; antennae and legs pale brown except the pale proximal four tarsal joints. Forewings hyaline with a very distinct broad smoky cross band, the infumation extending slightly beyond the stigmal vein and faintly maculated on outer lower portion; a deep median hyaline emargination or clear area on the inner margin of the cross band; oblique crease distinct; discal bristle absent; marginal fringe long and slender, the longest cilia being slightly longer than the greatest width of the forewing. Antennal club of medium length, measuring 0.086 mm. in length and slightly less than twice as long as the pedicel.

Female.—Unknown

Described from four males, reared by the writer from *Aspidiotus lataniae* (det. by Dr. H. Morrison as *not typical*) incrusting oleander twigs at New Orleans, La., Jan. 14, 1932, in association with a few *Prospaltella* sp.; and seven males reared from similar material at same place Sept. 24–25, 1932. The species varies considerably in degree of yellow coloration and with some specimens the legs are pale yellowish brown.

The type male and a paratype male on single slide is deposited in the U. S. National Museum collection. Type No. 44819
